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ESG Disclosure Component and Firm Performance in PROPER-Rated Indonesian Listed Firms: Evidence from ROA and Tobin's Q

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Abstract

Stakeholder demand for ESG disclosure has increased the need to examine whether sustainability-related information is associated with firm performance, particularly in emerging markets where prior findings remain mixed. Many previous studies treat ESG disclosure as an aggregate measure, leaving limited evidence on how environmental, social, and governance components are separately related to different performance outcomes. This study addresses this gap by examining component-level ESG disclosure among PROPER-rated Indonesian listed companies and comparing its association with accounting-based performance, measured by return on assets (ROA), and market-based performance, measured by Tobin's Q. This study uses a quantitative approach with multiple linear regression/pooled OLS on data from Indonesian listed companies receiving PROPER ratings during 2021–2023. Using purposive sampling, the final sample consists of 26 companies and 78 firm-year observations. The results show that ESG disclosure components are associated differently with ROA and Tobin's Q. For ROA, Environmental Score (E Score) and Social Score (S Score) are not statistically significant, while Governance Score (G Score) is positively significant. For Tobin's Q, E Score, S Score, and G Score are statistically significant but E Score has negatively associated with Tobin's Q. E Score shows a negative direction in both performance models, which may reflect additional compliance, reporting, monitoring, and environmental investment costs associated with environmental disclosure. In contrast, G Score is positively significant across both ROA and Tobin's Q, indicating that governance disclosure is consistently associated with stronger firm performance. This study contributes to ESG literature by providing component-level evidence from PROPER-rated Indonesian listed firms and by distinguishing between accounting-based and market-based performance measures.

KEYWORDS

environmental; social; governance; firm value; firm performance.

Introduction

Sustainability reporting in Indonesia has become increasingly important following the enactment of Financial Services Authority Regulation No. 51/POJK.03/2017, which requires financial institutions, issuers, and public companies to prepare sustainability reports. This regulation has strengthened corporate transparency and encouraged firms to disclose environmental, social, and governance (ESG) information more systematically. The number of companies issuing sustainability reports has continued to increase, from 45 companies in 2018 to 67 companies in 2019 and 121 companies in 2020 (FIHRRST, 2020) while 88% of Indonesian listed companies had issued sustainability reports by 2022 (PricewaterhouseCoopers, 2023). Furthermore, in 2023, new regulations were introduced governing green financial instruments, climate risk governance for banking institutions, and the establishment of a carbon exchange trading mechanism. The implementation of sustainability reporting has also reached the stage of dissemination to professional accounting bodies as key preparers of financial statements. Since 2024, the Indonesian Institute of Accountants (IAI) has adopted the IFRS (International Financial Reporting Standard) S1 and S2 standards to be gradually applied in Indonesia. Moreover, mandatory adoption of these standards will take effect starting January 1, 2027, for all listed companies in the country.

Indonesia's commitment to climate change mitigation through its Nationally Determined Contribution (NDC), which targets a reduction in greenhouse gas emissions by 29% using national resources and up to 41% with international support by 2030, strengthens the relevance of corporate environmental responsibility and disclosure (Partnership, 2021). This makes PROPER-rated firms an appropriate research setting, as PROPER reflects the government's assessment of corporate environmental performance and places firms under greater environmental scrutiny. Accordingly, this study focuses on PROPER-rated Indonesian listed companies to examine whether environmental disclosure is associated with firm performance, measured through both ROA and Tobin's Q.

In the changing realm of corporate accountability, ESG disclosure is increasingly recognised as a key element associated with firm performance. Stakeholders increasingly need openness in both financial indicators and non-financial elements that demonstrate a company's dedication to sustainable and ethical operations. This transition highlights the need of ESG disclosures as a mechanism for stakeholders in evaluating the company's long-term viability and ethical orientation.

Recent studies have investigated the association between ESG disclosure practices and firm performance, but the evidence remains varied. (Veeravel et al., 2024) found that ESG disclosure scores were positively related to firm performance, as reflected in ROA and ROE, among companies listed on India's National Stock Exchange. Similar evidence was reported in the Malaysian context by (Ab Aziz et al., 2023) and (Hussain et al., 2024) also showed that ESG disclosure can enhance corporate profitability by improving access to financing and lowering borrowing costs. This argument is further supported by (Isack & Aschauer, 2025) who found that positive ESG ratings significantly influence ESG-linked credit lending decisions. Comparable findings were also documented among Italian firms by (Pulino et al., 2022). In the Indonesian context,(Nugrahanti & Lysandra, 2024) found that CSR implementation contributes positively to firm performance across different business scales, covering firms of different sizes, from large corporations to small and medium-sized enterprises. However, these prior studies have not fully examined ESG disclosure at the component level in PROPER-rated Indonesian listed companies during the post-pandemic period. Therefore, this study extends the existing literature by separately testing environmental, social, and governance disclosure components and comparing their association with accounting-based performance, measured by ROA, and market-based performance, measured by Tobin's Q.

Several studies have found that companies generally choose to implement CSR activities in the environmental areas during the initial stages as a means of portraying their business operations as environmentally friendly. A study of the apparel industry in Bangladesh found that environmental CSR actions play a critical role in improving firm performance. Existing research shows that environmental CSR is an important factor in building a positive green image and enhancing firms' competitive advantage in sustainability-related practices (Alam & Islam, 2021). Environmental initiatives may also generate positive investor responses, as reflected in Tobin's Q, although the same effect may not always appear in accounting-based performance measures such as ROA and ROE, as shown in publicly listed firms in India (Shobhwani & Lodha, 2024). Similar evidence suggests that investors in China respond positively to high-quality environmental information disclosure (Wang, 2023). In addition, corporate environmental CSR has been found to improve firm performance in Ghana, indicating that environmental practices may enhance firm value in various market settings (Fosu et al., 2024). One form of stakeholder engagement that companies in Rome can undertake involves activities related to climate change and environmental sustainability (Olukorede, 2025).

Although ESG-related research has continued to develop, the findings remain inconsistent across countries, sectors, and performance measures. Studies in markets such as India and China generally suggest that ESG disclosure can improve firm performance or market valuation because investors may interpret sustainability information as a signal of transparency, lower risk, and long-term value creation. In contrast, evidence from ASEAN countries shows that the association between ESG disclosure and firm performance is often positive but statistically insignificant (Fernando et al., 2022; Junius et al., 2020; Negara et al., 2024). These divergent findings may be explained by differences in ESG reporting maturity, regulatory enforcement, industry composition, investor awareness, and the comparability of ESG disclosure standards across markets. In addition, ESG disclosure may not always improve performance because firms can face additional compliance, reporting, and implementation costs, while potential greenwashing may reduce the credibility of ESG information. (Biju et al., 2025) for example, found that ESG disclosure did not significantly influence firm performance and highlighted potential greenwashing practices among Indian companies. Prior studies also suggest that ESG disclosure may differ across sectors, indicating the need for more standardised measurement and more context-specific analysis (Fernando et al., 2022; Halim Rachmat, 2019; Junius et al., 2020; Tamasiga et al., 2024).

This study contributes to emerging-market ESG research by providing component-level evidence on the association between ESG disclosure and firm performance in PROPER-rated Indonesian listed companies during the post-pandemic period. Unlike prior studies that often examine ESG disclosure as an aggregate measure, this study separately tests environmental, social, and governance disclosure to identify whether each component is associated differently with firm performance. In addition, this study compares accounting-based performance, measured by ROA, and market-based performance, measured by Tobin's Q. This distinction provides a more nuanced understanding of whether ESG disclosure is reflected in short-term profitability or in investor valuation. By focusing on PROPER-rated firms, this study also offers evidence from companies subject to greater environmental scrutiny in an emerging-market setting. The focus on PROPER-rated firms is also supported by prior literature on environmental disclosure and stakeholder response. Environmental CSR has been shown to strengthen green corporate image and competitive advantage (Alam & Islam, 2021),while environmental disclosure may generate different implications for accounting-based and market-based performance, as reflected in ROA and Tobin's Q (Shobhwani & Lodha, 2024). In addition, stakeholder engagement in environmental and social responsibility contexts remains important for firms seeking to maintain legitimacy and stakeholder support (Olukorede, 2025). These studies support the relevance of examining PROPER-rated firms, as they operate under stronger environmental scrutiny and provide an appropriate setting for analysing the association between ESG disclosure components and firm performance.

Grand Theory for Sustainability Disclosure

The association between ESG disclosure and firm performance can be explained through stakeholder theory and legitimacy theory. Stakeholder theory suggests that ESG disclosure reduces information asymmetry and helps firms respond to the expectations of investors, creditors, regulators, employees, customers, and communities. Therefore, ESG disclosure may be more strongly reflected in market-based performance, such as Tobin's Q, because investors can use sustainability information to assess long-term value, risk management, and corporate reputation. Legitimacy theory further explains that firms disclose ESG information to demonstrate alignment with social expectations, environmental norms, and regulatory requirements. This is particularly relevant for PROPER-rated firms in Indonesia, as these firms are subject to greater environmental scrutiny. However, the relationship between ESG disclosure and firm performance may differ across ESG components and performance measures. Environmental disclosure, for instance, may improve legitimacy but may also involve compliance, reporting, monitoring, and environmental investment costs that reduce short-term accounting profitability, as reflected in ROA. Governance disclosure, in contrast, may provide a clearer signal of accountability, transparency, and risk control, making it more consistently associated with both accounting-based and market-based performance. Thus, stakeholder theory and legitimacy theory provide the theoretical basis for examining whether environmental, social, and governance disclosure components are differently associated with ROA and Tobin's Q.

Environmental Disclosure to Firm Performance

Environmental disclosure, as a key component of ESG reporting, refers to the communication of a company's environmental practices, risks, and impacts to stakeholders. This disclosure is particularly important for firms operating in environmentally sensitive sectors because it improves transparency and accountability regarding corporate environmental responsibility. From the perspective of stakeholder theory, environmental disclosure may strengthen stakeholder trust, reduce information asymmetry, and attract long-term investors who value sustainable business practices. Similarly, legitimacy theory suggests that environmental disclosure helps firms demonstrate that their activities are aligned with social expectations, regulatory requirements, and environmental norms. Prior evidence shows that firms with more extensive climate risk and environmental disclosure may achieve better financial performance because stakeholders perceive them as having stronger long-term sustainability and lower investment risk (Lin & Qamruzzaman, 2023; Megeid, 2024). However, the relationship between environmental disclosure and firm performance may not always be positive. Environmental disclosure may also be associated with additional compliance, monitoring, reporting, and environmental investment costs. These costs may reduce short-term profitability, particularly when the benefits of environmental disclosure are not immediately reflected in financial outcomes. In addition, investors may interpret environmental disclosure differently when it is perceived as compliance-oriented rather than value-enhancing. Therefore, given these competing theoretical arguments and mixed prior findings, this study proposes non-directional hypotheses as follows:

Ha1a: Environmental disclosure is significantly associated with firm performance measured by ROA

Ha1b: Environmental disclosure is significantly associated with firm performance measured by Tobin Q

Social Disclosure to Firm Performance

This study employs the GRI standard 2021 to assess social disclosure (GRI 4) for each company, focusing on information regarding how these organizations uphold employment practices, labor relations, health and safety, and overall employee welfare, including opportunities for personal development. This standard also addresses customer protection and socioeconomic compliance.

When a company openly reveals that it functions without social issues—such as breaches of labor laws, discrimination, or deficiencies in diversity and employee health benefits—it indicates a robust dedication to ethical practices and the welfare of stakeholders. These disclosures can lead to improved firm performance through the enhancement of reputation, the cultivation of stakeholder trust, and the mitigation of operational risks. The social pillar reflects how effectively a company builds trust with employees, customers, and the broader community through responsible labour and workplace practices. It also indicates the firm's reputation and capacity to maintain stakeholder support, which are important factors in creating long-term shareholder value (Abdi et al., 2020). Stakeholder theory argues that companies are more likely to sustain long-term success when they take into account the expectations of key stakeholders, including employees, customers, and the wider community. Compliance with labour regulations, commitment to non-discrimination and diversity, and the provision of health benefits can strengthen employee satisfaction and retention, which may ultimately improve productivity and profitability. Effective social practices may strengthen a company's brand image and positively influence market perceptions, which may ultimately improve its market-based performance evaluation (Guedes et al., 2025).

However, the relationship between social disclosure and firm performance may not always be positive. Social disclosure and related social responsibility practices may require additional costs, including employee welfare programs, occupational health and safety improvements, training, diversity initiatives, community development activities, and compliance with labour and social regulations. These costs may reduce short-term profitability when the financial benefits are not immediately realised. In addition, investors may not always interpret social disclosure as value-enhancing, particularly when the disclosure is perceived as symbolic, compliance-oriented, or not directly linked to measurable financial outcomes. Prior evidence also suggests that social disclosure can have a negative relationship with market-based performance in certain contexts (Firmansyah et al., 2021). Therefore, given these competing arguments and mixed empirical findings, this study proposes the following non-directional hypotheses:

Ha2a: Social disclosure is significantly associated with firm performance measured by ROA.

Ha2b : Social disclosure is significantly associated with firm performance measured by Tobin Q

Governance Disclosure to Firm Performance

According to the GRI Standards 2021, governance disclosure includes areas such as anti-corruption under GRI 205, anti-competitive behaviour under GRI 206, and tax transparency under GRI 207. Effective anti-corruption policies can assist companies in minimising legal exposure and maintaining corporate reputation. Studies on Peruvian companies indicate that many firms acknowledge the relevance of anti-corruption disclosure as part of sustainability management and compliance with regulatory requirements, although their compliance with the standard is still relatively limited (Hernández-Pajares, 2023). Governance disclosure refers to the communication of information related to corporate accountability, transparency, ethical conduct, anti-corruption policies, anti-competitive behaviour, tax transparency, and risk oversight. According to the GRI Standards, governance-related disclosure may include information on anti-corruption, anti-competitive behaviour, and tax transparency. From the perspective of agency theory and stakeholder theory, governance disclosure may improve firm performance by reducing information asymmetry, limiting managerial opportunism, strengthening internal control, and increasing investor confidence. This also can reduce the likelihood of earnings management practices and, in turn, enhance firm value (Harjanto, 2024). Effective anti-corruption policies and transparent governance practices can reduce legal exposure, protect corporate reputation, and support stakeholder trust. Prior research also suggests that corporate governance quality can reduce agency costs and improve firm performance, particularly in emerging-market settings where investor protection and institutional enforcement may vary (Rashid Khan et al., 2020). In addition, strong corporate governance may encourage firms to provide more voluntary information, including earnings forecasts, thereby improving transparency and market confidence (Liao et al., 2024).

However, the relationship between governance disclosure and firm performance may not always be positive. Governance disclosure may require additional monitoring, compliance, audit, reporting, and administrative costs. These costs may reduce short-term profitability, particularly when the benefits of governance practices are not immediately reflected in financial outcomes. Furthermore, investors may not respond positively when governance disclosure is perceived as symbolic, compliance-oriented, or insufficiently informative. (Ronoowah & Seetanah, 2025) for example, found that governance disclosure quality had a negative and insignificant relationship with both ROA and Tobin's Q in an emerging-market context, suggesting that disclosure quality and in formativeness matter. Similarly, (Al-Tarawneh et al., 2024) found a negative and significant relationship between Governance score and Tobin's Q, indicating that the market may not always reward governance-related ESG initiatives in the short term. Therefore, given these competing theoretical arguments and mixed empirical findings, this study proposes the following non-directional hypotheses:

Ha3a: Governance disclosures is significantly associated with firm performance measured by ROA.

Ha3b: Governance disclosures is significantly associated with firm performance measured by Tobin

Note: The direction of the correlation (positive or negative) is not specified in the hypotheses, as prior literature reports mixed findings. The empirical analysis will determine the sign and significance of the relationship.

Methods

Population and Sample/Informants

This study focuses on the 2021–2023 period because it represents the post-pandemic recovery phase, during which firm performance may have been affected by changing macroeconomic conditions, market recovery, and adjustments in corporate sustainability strategies. This period is theoretically relevant because ESG disclosure became increasingly important as firms faced greater stakeholder expectations for transparency and sustainability after the pandemic. Empirically, the period also allows this study to examine recent sustainability reporting practices among Indonesian listed companies after the implementation of mandatory sustainability reporting requirements. To address potential year-specific shocks during this period, this study includes year dummy variables for 2022 and 2023, with 2021 used as the reference year. The inclusion of year dummies helps control for macroeconomic and recovery-related differences across years that may affect ROA and Tobin's Q independently of ESG disclosure.

This study focuses on companies included in the PROPER (Program Penilaian Peringkat Kinerja Perusahaan) rating, an environmental performance evaluation program overseen by Indonesia's Ministry of Environment and Forestry. PROPER-rated firms are relevant for this study because they are subject to greater environmental scrutiny and are more likely to disclose environmental information. Therefore, this sample provides an appropriate setting for examining whether environmental, social, and governance disclosure components are associated with firm performance. Although the sample consists of firms from various industrial sectors, detailed industry fixed effects or industry dummy variables are not included in the regression model because the final sample consists of only 26 firms and 78 firm-year observations. Including multiple industry dummies in this relatively small and purposively selected sample would reduce the degrees of freedom and may lead to unstable estimates, particularly if some industries are represented by only a small number of firms. Accordingly, the results are interpreted cautiously and the absence of detailed industry controls is acknowledged as a limitation of the study.

Research Location

This study investigates Indonesian publicly listed companies registered on the Indonesia Stock Exchange during the 2021–2023 period. The sample was selected using purposive sampling and was limited to companies that received PROPER environmental performance ratings and met the predetermined selection criteria. Therefore, the findings should be interpreted within the context of PROPER-rated Indonesian listed companies and should not be generalized to all listed companies in Indonesia. However, the inclusion of firms from various industrial sectors provides context-specific evidence on ESG disclosure and firm performance among companies subject to environmental performance assessment.

Instrumentation or Tools

The ESG disclosure scores used in this study were obtained from the ESG Dataset, a third-party ESG database associated with Universitas Airlangga and the Center for Environmental, Social, and Governance Studies (CESGS). The dataset provides Environmental Score (EScore), Social Score (SScore), and Governance Score (GScore) based on disclosure information from companies' sustainability reports and GRI-based disclosure categories. Based on the dataset description, the ESG scores are calculated using a binary scoring approach, where disclosed items are assigned a score of 1 and undisclosed items are assigned a score of 0. Each ESG component score is calculated as the proportion of disclosed items to total applicable items in the relevant ESG dimension.

Data for the financial variables were collected from companies' audited annual reports and financial statements available through the Indonesia Stock Exchange and company websites. The data were analyzed using SPSS software. This study employed multiple linear regression analysis to examine the association between ESG disclosure components and firm performance. The final sample consisted of 26 companies observed during the 2021–2023 period, resulting in 78 firm-year observations. Year dummy variables for 2022 and 2023 were included, with 2021 as the reference year, to control for year-specific macroeconomic and post-pandemic recovery effects that may influence ROA and Tobin's Q independently of ESG disclosure. Given the relatively small sample size and short observation period, more complex panel models were not applied, and this limitation is acknowledged in the limitation section.

Data Collection Procedures

The sample was selected using purposive sampling based on the criteria presented in Table 1. A total of 26 companies observed over three years resulted in 78 firm-year observations. The sampling criteria were applied to ensure that the selected companies had comparable financial reporting characteristics, complete ESG-related disclosure data, and relevant environmental performance ratings through PROPER.

Table 1. Sample Selection Process

No	Sample Selection Criteria	Number of firms
1	Non-financial companies publicly listed on the Indonesia Stock Exchange (IDX) consecutively during 2021 – 2023 and included in the PROPER environmental performance rating issued by the Ministry of Environment and Forestry	84
2	Companies that published audited annual reports during the 2021–2023	84
3	Companies with 31 December as their financial year-end	83
4	Companies that presented their financial statements in Indonesian Rupiah (IDR)	66
5	Companies that reported positive net income throughout the 2021–2023	44
6	Companies that were not suspended by the IDX during the 2021–2023	44
7	Companies that had been listed on the IDX before 1 January 2021	43
8	Companies that published sustainability reports during the 2021–2023 period and had available ESG scores in the ESG Dataset provided by the Center for Environmental, Social, and Governance Studies (CESGS)	26

Table 2. Explanation of variables used

Variable	Acronym	Measurement
Dependent:		
Return on Assets	ROA	$ROA = \frac{Net\ Income}{Average\ Total\ Assets}$
Tobin's Q	Tobin	$Tobins\ Q = \frac{(Equity\ market\ value + total\ liabilities)}{Total\ Asset}$
Independent:		
ESG – Environmental	E score	Environmental score of the sample companies
ESG – Social	S Score	Social score of the sample companies
ESG – Governance	G Score	Governance score of the sample companies
Control:		
Companies Size	Size	Ln Total Asset
Leverage	DAR	$DAR = \frac{Total\ Liabilities}{Total\ Asset}$
Companies Age	Age	the initial year of its public registration up to the final year of the research period

Financial service companies are excluded from this study due to the presence of stringent and specific regulations governing the sector, as well as the distinct nature of their business operations compared to the other sampled firms. The sample was limited to companies that consistently reported positive net income during 2021–2023, as this study uses ROA and focuses on profitable firms. This criterion ensures comparability in assessing the relationship between ESG disclosure and profitability. However, excluding loss-making firms may limit the interpretation of the ROA results. Therefore, the findings should not be generalized to firms with negative earnings, where the ESG–performance relationship may differ.

Data Analysis

Quantitative data were examined using multiple regression analysis to assess how the independent variables are associated with the dependent variable. Descriptive statistics were also applied to describe the distribution and characteristics of the data. Hypothesis testing was also performed through the coefficient of determination, correlation analysis, and simultaneous and partial effect tests. This study includes a dependent variable that assesses company performance on an accounting basis through the use of ROA (Return on Assets). ROA is frequently employed to directly assess the effectiveness with which a company utilizes its assets to generate profit, highlighting a fundamental aspect of firm performance. We utilize Tobin's Q, which reflects market variables, to assess company performance (see Table 2). Tobin's Q represents the market's assessment of a company's assets relative to their book value or replacement cost. It reflects investor expectations concerning the firm's future profitability, growth potential, and intangible value generated from its performance.

Based on the research model, this study develops two regression equations as follows:

$$\begin{aligned} ROAit = \alpha + \beta1EScoreit + \beta2SScoreit + \beta3GScoreit \\ + \beta4SIZEit + \beta5DARit + \beta6AGEit \\ + \beta7YEAR2022 + \beta8YEAR2023 + \varepsilon \end{aligned}$$

$$\begin{aligned} TobinQit = \alpha + \beta1EScoreit + \beta2SScoreit + \beta3GScoreit \\ + \beta4SIZEit + \beta5DARit + \beta6AGEit \\ + \beta7YEAR2022 + \beta8YEAR2023 + \varepsilon \end{aligned}$$

ROA represents accounting-based firm performance, TobinQ represents market-based firm performance, EScore represents environmental disclosure, SScore represents social disclosure, GScore represents governance disclosure, SIZE represents firm size, DAR represents leverage, AGE represents firm age, YEAR2022 and YEAR2023 are year dummy variables with 2021 as the reference year, α is the constant, β represents the regression coefficient, ε is the error term, i represents firm, and t represents year.

Result and Discussion

The empirical analysis was conducted using 78 firm-year observations from 26 PROPER-rated non-financial companies listed on the Indonesia Stock Exchange during the 2021–2023 period. Table 3 presents the descriptive statistics for the dependent variables, independent variables, and control variables used in this study. ROA represents accounting-based firm performance, while Tobin's Q represents market-based firm performance. EScore, SScore, and GScore represent environmental, social, and governance disclosure scores, respectively.

The descriptive statistics indicate that ROA values range from a minimum of 0.009 to a maximum of 0.318, showing that the profitability of the sample firms varies between 0.9% and 31.8%. The average ROA is 0.110, which suggests that the sample firms generate an average return of 11% on their assets, with a standard deviation of 0.085. Tobin's Q has a minimum value of 0.029 and a maximum value of 10.570, indicating substantial variation in market-based firm performance across the sample. The minimum value below 1 suggests that some firms had market values lower than their book or replacement values, while the maximum value indicates that some firms were valued substantially above their book or replacement values. The mean value of Tobin's Q is 2.120, suggesting that, on average, the market value of the sample firms is approximately 2.12 times higher than their book value, with a standard deviation of 1.999. The environmental disclosure score ranges from 0.125 to 1.000, indicating that environmental disclosure among the sample firms varies from 12.5% to 100%. The mean value of 0.560 shows that, on average, firms disclose 56% of the environmental measurement items, with a standard deviation of 0.207. The social disclosure score has a minimum value of 0.100 and a maximum value of 1.000, meaning that social disclosure ranges from 10% to 100%. Its mean value of 0.573 indicates that firms disclose an average of 57.3% of the social measurement items, with a standard deviation of 0.228. The governance disclosure score ranges from 0.000 to 1.000, showing that governance disclosure varies from 0% to 100%. The average governance score is 0.705, which indicates that firms disclose 70.5% of the governance measurement items on average, with a standard deviation of 0.350.

Table 3. Descriptive Statistics

	Minimum	Maximum	Mean	Standard Deviation
ROA	0.009	0.318	0.110	0.085
Tobins Q	0.029	10.570	2.120	1.999
E Score	0.125	1.000	0.560	0.207
S Score	0.100	1.000	0.573	0.228
G Score	0.000	1.000	0.705	0.350
Size	27.703	32.860	30.477	1.326
DAR	0.001	0.832	0.409	0.191
Age	4.036	46.422	26.017	11.002

N = 78 firm-year observations. ROA = Return On Assets; Tobin's Q = market-based firm performance; EScore = environmental disclosure score; SScore = social disclosure score; GScore = governance disclosure score; SIZE = natural logarithm of total assets; DAR = Debt to Asset Ratio; AGE = firm age.

Table 4. Kolmogorov-Smirnov Normality Test of Regression Residuals

	ROA	Tobin Q
Asymp. Sig (2-tailed)	0.061	0.015
Monte Carlo Sig. (2 tailed)	0.412	0.253

Table 5. Multicollinearity Test Results

	Tolerance	VIF
E Score	0.583	1.716
S Score	0.576	1.735
G Score	0.884	1.131
Size	0.779	1.283
DAR	0.887	1.127
Age	0.810	1.234

Firm size, measured by SIZE, has a minimum value of 27.703 and a maximum value of 32.860, indicating that the total assets of the sample firms range from approximately IDR 1.074 trillion to IDR 186 trillion. The mean SIZE value of 30.477 suggests that, on average, the sample firms have total assets of approximately IDR 34.2 trillion, reflecting that the sample consists mainly of large-scale companies. DAR ranges from 0.001 to 0.832, indicating that debt finances between 0.1% and 83.2% of total assets. The mean DAR value of 0.409 shows that, on average, debt accounts for 40.9% of total assets, with a standard deviation of 0.191. Finally, firm age ranges from 4.036 to 46.422, indicating that the sample firms have been listed for approximately 4 to 46 years. The mean value of 26.017 suggests that, on average, the firms have been listed for around 26 years, with a standard deviation of 11.002.

To assess the normality assumption in the regression analysis, this study examined the distribution of the regression residuals using the Kolmogorov-Smirnov test. The test was conducted on the unstandardized residuals generated from the ROA and Tobin's Q regression models. The results are presented in Table 4.

The Kolmogorov-Smirnov test produced asymptotic significance values below 0.05, suggesting potential deviations from normality. However, the Monte Carlo significance values based on 10,000 simulations were 0.412 for the ROA model and 0.253 for the Tobin's Q model, both exceeding the 0.05 threshold. These results indicate that the regression residuals do not show severe departures from normality. Therefore, the residual normality assumption is considered acceptable for the regression analysis.

Furthermore, a multicollinearity test was carried out to verify that the independent variables were not strongly correlated with one another. The results of the multicollinearity test are presented in Table 5.

The multicollinearity assessment shows that each independent variable meets the required threshold, with tolerance values exceeding 0.10 and VIF values remaining below 10. These results suggest that the independent variables are not highly correlated with one another, so the regression model is free from multicollinearity problems.

To assess heteroscedasticity, this study first examined the residual scatterplot and then conducted the Breusch-Pagan test as a formal diagnostic test. The scatterplot-based heteroscedasticity test further shows that the points are distributed irregularly around zero on the Y-axis without forming a clear pattern. This suggests that the residuals show stable variance across the range of the independent variables. The Breusch-Pagan test also indicated no evidence of heteroscedasticity in the ROA model ($\chi^2 = 13.494$, $p = 0.096$) and the Tobin's Q model ($\chi^2 = 14.352$, $p = 0.073$). Therefore, the variance of the residuals is considered stable across the range of the independent variables, and the regression model does not indicate a heteroscedasticity problem.

The autocorrelation assumption was assessed using the Runs Test on the regression residuals. The results show Asymp. Sig. (2-tailed) values of 0.422 for the ROA model and 0.434 for the Tobin's Q model, both of which are greater than 0.05. These findings suggest that the residuals follow a random distribution, meaning that no autocorrelation problem is detected in the regression model. After completing the data quality tests, hypothesis testing was conducted, and the results are presented as follows Table 6.

The results show that the model using ROA as the dependent variable has an F-statistic of 2.765 with a significance value of 0.010 means regression model adequately fits the data and the independent and control variables jointly explain variation in ROA. The model reports an R value of 0.493 and adjusted R-squared of 0.155. Adjusted R^2

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Table 6. Multiple Regression Results

	ROA				Tobins Q			
	Unstandardized Coefficient	Standardized Coefficient	Sig.		Unstandardized Coefficient	Standardized Coefficient	Sig.	
Constant	0.752		0.001	***	17.782		0.000	***
E Score	-0.027	-0.065	0.636		-2.631	-0.272	0.039	**
S Score	0.070	0.187	0.195		1.933	0.220	0.015	**
G Score	0.083	0.340	0.009	***	2.212	0.387	0.002	***
Size	-0.026	-0.396	0.001	***	-0.625	-0.415	0.000	***
DAR	0.028	0.062	0.578		2.381	0.228	0.033	**
Age	0.002	0.275	0.021	**	0.062	0.342	0.002	***
Year 2022	-0.008	-0.046	0.729		-0.369	-0.088	0.483	
Year 2023	-0.037	-0.206	0.145		-0.802	-0.190	0.150	
F Value	2.765		0.010	***	4.374		0.000	***
R value	0.493				0.580			
Adjusted R^2	0.155				0.260			

*,**,*** indicate significance at the 0.1, 0.05, and 0.01 levels (two-tailed test), respectively

show that environmental, social and governance disclosure explain 15.5% of the variation in ROA. Regarding the individual coefficients, E Score has a negative and statistically insignificant association with ROA (B = -0.027 p = 0.636), while S Score has a positive and statistically insignificant association with ROA (B = 0.070, p = 0.195). Therefore, Ha1a and Ha2a are not supported. However, G Score has a positive and statistically significant association with ROA (B = 0.083, p = 0.009), indicating that higher governance disclosure is associated with higher accounting-based firm performance. Thus, Ha3a is supported.

The results show that the regression model with Tobin's Q as the dependent variable has an F-statistic of 4.374 with a significance value of 0.000 means regression model adequately fits the data and the independent and control variables jointly explain variation in Tobin's Q. The model reports an R value of 0.580 and adjusted R-squared of 0.260. Adjusted R^2 show that environmental, social and governance disclosure explain 26% of the variation in Tobin's Q. The regression results for Tobin's Q show that E Score has a negative and statistically significant association with Tobin's Q (B = -2.631, p = 0.039), while S Score has a positive and statistically significant association with Tobin's Q (B= 1.933, p = 0.039), and G Score has a positive and statistically significant association with Tobin's Q (B= 2.212, p = 0.002). These results suggest that ESG disclosure components significantly affect firm performance from a market-based perspective. Since the ESG disclosure scores range from 0 to 1, a 0.10 increase in E Score is associated with a 0.263 decrease in Tobin's Q. In contrast, a 0.10 increase in S Score is associated with a 0.193 increase in Tobin's Q, while a 0.10 increase in G Score is associated with a 0.221 increase in Tobin's Q. These findings indicate that ESG components are not uniformly associated with higher market-based performance. Environmental disclosure is negatively associated with Tobin's Q, which may reflect investor concerns regarding compliance, reporting, monitoring, and environmental investment costs. Conversely, social and governance disclosures are positively associated with Tobin's Q, suggesting that investors may perceive social responsibility and governance transparency as stronger signals of stakeholder trust, accountability, and long-term value creation. Therefore, Ha1b, Ha2b, and Ha3b are supported. However, Ha1b is supported with a negative direction, while Ha2b and Ha3b are supported with positive directions.

Overall, the findings show that the model has stronger ability to explain market-based firm performance, represented by Tobin's Q, than for accounting-based firm performance, as measured by ROA. This suggests that ESG-related factors and firm characteristics are more closely associated with market valuation than with accounting profitability.

Interpretation of Key Findings

The statistical results indicate that ESG disclosure components reported in sustainability reports are significantly associated with market-based firm performance, as measured by Tobin's Q. Among the ESG components, governance disclosure is the only component that is significantly associated with firm performance from both accounting-based and market-based perspectives. This finding suggests that governance disclosure is more consistently related to both accounting-based performance and market valuation than environmental and social disclosure.

The statistical results reveal a consistently negative direction in the association between environmental disclosure and firm performance across both the ROA and Tobin's Q models. In the ROA model, the E Score coefficient is -0.027, suggesting that, when other variables are held constant, 0.10 increase in E Score is associated with a 0.0027 decrease in ROA. Similarly, in the Tobin's Q model, the E Score coefficient is -0.263, indicating that 0.10 increase in E Score is associated with a 0.263 decrease in Tobin's Q, assuming other variables remain constant. These findings suggest that although environmental disclosure is relevant to market-based performance, its negative coefficient indicates that higher environmental disclosure does not automatically lead to improved accounting-based or market-based firm performance within the sample. This finding may indicate that investors do not automatically perceive environmental disclosure as value-enhancing, particularly when such disclosure is viewed as compliance-oriented or has not yet resulted in measurable financial benefits. The inverse relationship between environmental disclosure and firm performance can be explained by the possibility that ESG-related disclosure and practices may create additional costs for firms, particularly in developing regions. Environmental disclosure may be perceived as compliance-oriented rather than value-enhancing, especially when it is associated with additional reporting, monitoring, regulatory compliance, and environmental investment costs. This interpretation is consistent with (Hussain et al., 2024), who found that ESG disclosures are negatively associated with financial performance in firms operating in the Asia-Pacific region, suggesting that ESG implementation may be perceived as a cost burden that reduces short-term profitability and market competitiveness. Similarly, companies that improve environmental performance through eco-efficient product development may not directly achieve better firm performance. Eco-efficiency practices often require recurring environmental expenditures, which can raise operational expenses and limit short-term profits and returns to investors (Silaban, David Hatigoran Dewi, 2023).

The PROPER-based sample provides an additional explanation for the negative environmental disclosure result. Since all sample firms have received environmental performance ratings from the government, investors may already recognise these companies as environmentally compliant. Therefore, additional environmental disclosure may provide limited incremental legitimacy or signaling value. In this context, extensive environmental disclosure may also be interpreted as a signal of higher environmental exposure, regulatory scrutiny, or operational risk, particularly because PROPER-rated firms are commonly associated with environmentally sensitive sectors. Thus, the negative association between EScore and Tobin's Q may reflect a sample-specific boundary condition: in firms already subject to government environmental assessment, more environmental disclosure may not necessarily be viewed as a pure virtue signal, but may instead indicate greater environmental obligations and risk exposure.

The results also show that social disclosure is positively and significantly associated with Tobin's Q but not significantly associated with ROA. This indicates that Ha2b is supported, while Ha2a is not supported. From the perspective of stakeholder theory, social disclosure may strengthen stakeholder trust, employee relations, customer confidence, and corporate reputation. However, these benefits may be more visible to investors than to accounting-based profitability in the short term. Social initiatives, such as employee welfare programs, workplace safety, training, diversity initiatives, and community engagement, may require costs that are immediately recognised in financial performance, while the benefits may take longer to convert into profitability. Therefore, the insignificant ROA result suggests that social disclosure may not yet generate measurable short-term accounting returns, even though the market may value it as a signal of long-term stakeholder support and legitimacy.

Governance disclosure is the only ESG component that is positively and significantly associated with both ROA and Tobin's Q. Therefore, Ha3a and Ha3b are supported. This finding suggests that governance disclosure is more consistently related to firm performance than environmental and social disclosure. From stakeholder theory, governance disclosure can reduce information asymmetry and strengthen investor confidence by providing clearer information about accountability, transparency, anti-corruption practices, tax transparency, and risk control. From legitimacy theory, governance disclosure helps firms demonstrate that their business practices are aligned with regulatory expectations and accepted standards of corporate conduct. Unlike environmental and social disclosure, which may involve more visible implementation costs and longer-term benefits, governance disclosure may be more directly linked to operational discipline, risk management, and investor confidence. This may explain why GScore is positively associated with both accounting-based performance and market-based valuation.

The results suggest that the market is sensitive to environmental and social disclosure, but the direction of market response differs across ESG components. Environmental disclosure is negatively associated with Tobin's Q, indicating that investors may not automatically interpret higher environmental disclosure as value-enhancing. Although prior studies suggest that media exposure and regulatory attention can encourage firms to increase environmental disclosure (Kurniasari & Lestari, 2025; Simon et al., 2024), such disclosure in the context of PROPER-rated firms may also signal higher environmental exposure, regulatory scrutiny, or compliance-related costs rather than purely stronger environmental commitment. In contrast, social disclosure is positively associated with Tobin's Q, suggesting that investors may value information related to stakeholder engagement, employee welfare, customer protection, and community responsibility as signals of long-term legitimacy and stakeholder trust. This distinction indicates that market-based performance captures investor sensitivity to ESG information, but not all ESG components are assessed in the same direction. From an accounting-based perspective, environmental and social disclosure do not show significant associations with ROA, suggesting that these disclosures may not yet translate into short-term profitability. Therefore, the findings indicate that ESG disclosure is more immediately reflected in market valuation than in accounting-based performance, but the market response depends on the specific ESG component being disclosed.

Comparison with Previous Studies

The findings of this study are partly consistent with previous research, but they also differ in several important ways. The positive and significant association between governance disclosure and both ROA and Tobin's Q is consistent with (Fatemi et al., 2018), who found that governance-related information plays an important role in investor valuation, and with (Velte, 2017), who reported that governance performance is the most influential ESG dimension in explaining ROA-based financial performance. This consistency suggests that governance disclosure may provide a clearer and more credible signal of accountability, transparency, risk management, and corporate control compared with environmental and social disclosure.

However, the negative coefficient of environmental disclosure, particularly its significant negative association with Tobin's Q, contrasts with studies that report a positive relationship between ESG disclosure and firm value or performance, such as (Mohammad & Wasiuzzaman, 2021). This difference may reflect the specific context of PROPER-rated Indonesian firms. Since the sample consists of companies that are already subject to environmental performance assessment, additional environmental disclosure may provide limited incremental legitimacy value. Instead, investors may interpret higher environmental disclosure as a signal of greater environmental exposure, regulatory scrutiny, compliance costs, or environmental investment obligations. This interpretation is consistent with (Hussain et al., 2024), who found that ESG disclosure may be negatively associated with financial performance in Asia-Pacific firms, and with (Silaban, David Hatigoran Dewi, 2023), who argued that environmental initiatives may require recurring environmental expenditures that reduce short-term profitability and investor returns.

The insignificant associations of environmental and social disclosure with ROA also differ from studies suggesting that ESG disclosure improves profitability. These findings indicate that environmental and social disclosures may not immediately translate into accounting-based performance. Environmental initiatives may involve compliance, monitoring, and investment costs, while social initiatives, such as employee welfare, workplace safety, training, and community engagement, may generate benefits over a longer period rather than in current profitability. Therefore, this study suggests that the implications of ESG disclosure depend on both the ESG component examined and the performance measure used. Governance disclosure appears more consistently associated with firm performance, while environmental and social disclosure may be more sensitive to cost considerations, industry exposure, and the distinction between market-based valuation and accounting-based profitability.

Limitations and Cautions

Several limitations should be acknowledged when interpreting the findings of this study. First, this study uses a relatively small and purposively selected sample consisting only of PROPER-rated Indonesian listed companies. This sampling approach is appropriate for examining firms subject to environmental performance assessment, but it limits the external validity of the findings. Therefore, the results should be interpreted within the context of environmentally rated Indonesian listed firms and should not be generalized to all companies listed on the Indonesia Stock Exchange. Second, the sample was limited to firms that consistently reported positive net income during 2021–2023. This criterion was applied to improve comparability in examining ROA among profitable firms; however, it also means that the findings may not represent loss-making or financially distressed firms, where the ESG disclosure–performance relationship may differ. Third, although the sample includes firms from several industrial sectors, detailed industry fixed effects were not included because of the small sample size and uneven industry representation. This may affect coefficient stability and limits the ability to fully control for industry-specific differences in ESG disclosure intensity and firm performance. Fourth, ownership structure, such as state-owned versus private ownership and foreign versus domestic ownership, was not included due to data availability limitations. This creates a possible omitted-variable concern because ownership characteristics may influence both ESG disclosure and market response. Fifth, because this study uses an observational research design and multiple linear regression, the results should be interpreted as associations rather than causal effects. Potential endogeneity and reverse causality may exist, as better-performing firms may have more resources to disclose ESG information, while ESG disclosure may also be associated with firm performance. Finally, the 2021–2023 period was selected because it represents an important post-pandemic recovery phase for examining recent ESG disclosure practices. However, this period may also contain macroeconomic and recovery-related shocks that affect ROA and Tobin's Q. Although year dummy variables were included to control for year-specific effects, these controls may not fully eliminate all post-pandemic influences.

Recommendations for Future Research

Future research is encouraged to expand the sample coverage by including a larger number of Indonesian listed companies across broader industrial sectors, including firms outside the PROPER rating. This would allow future studies to compare whether the ESG disclosure–firm performance relationship differs between environmentally rated and non-environmentally rated firms. Future studies may also include firms with different profitability conditions to examine whether ESG disclosure has different implications for profitable, loss-making, or financially distressed firms. In addition, incorporating industry fixed effects and ownership structure controls, such as state-owned versus private ownership and foreign versus domestic ownership, may reduce omitted-variable concerns and provide more robust evidence. Since this study uses an observational design, future research may apply longer observation periods, panel data approaches, or other research designs to better address potential endogeneity and reverse causality. Finally, additional market-based performance proxies, such as price-to-book value, stock price, or market return, may provide deeper insight into how investors evaluate ESG disclosure components.

Conclusion

This study examined the association between ESG disclosure components and firm performance using accounting-based performance, measured by ROA, and market-based performance, measured by Tobin's Q. The findings show that ESG components are associated differently with firm performance among PROPER-rated Indonesian listed companies. Environmental disclosure is insignificant for ROA but negatively significant for Tobin's Q, indicating that higher environmental disclosure does not necessarily improve profitability or market valuation in this sample. Social disclosure is insignificant for ROA but positively significant for Tobin's Q, while governance disclosure is positively significant in both models. Therefore, governance is the most consistent ESG component, whereas environmental and social disclosure show different implications across accounting-based and market-based performance measures.

Notably, among the sampled PROPER-rated firms, environmental and social disclosure do not show significant associations with accounting-based profitability. These findings suggest that ESG-related information may be more immediately reflected in investor perception than in short-term accounting performance. However, investor perception of ESG disclosure appears to be component-specific rather than uniformly positive. Environmental disclosure is negatively associated with Tobin's Q, suggesting that in PROPER-rated firms, additional environmental disclosure may be interpreted by investors as a signal of higher environmental costs, regulatory scrutiny, or risk exposure rather than purely as a value-enhancing signal. In contrast, social and governance disclosure are positively associated with Tobin's Q, indicating that investors may respond more favourably to ESG information related to stakeholder relations, accountability, transparency, and governance quality. Because this study uses a relatively small and purposively selected sample, the findings should be understood within the context of PROPER-rated Indonesian listed companies and should not be generalized to all Indonesian listed companies.

Theoretically, this study extends stakeholder theory and legitimacy theory by showing that ESG disclosure does not operate as a uniform signal of firm value. In the context of PROPER-rated firms, environmental disclosure may strengthen transparency and legitimacy, but it may also signal higher environmental exposure and compliance-related obligations. This finding suggests that legitimacy value depends not only on whether firms disclose ESG information, but also on how investors interpret each ESG component. Practically, the findings imply that managers should not treat ESG disclosure as a general reporting exercise, but should improve the quality and clarity of component-specific disclosure, particularly by explaining how environmental initiatives create value beyond compliance. For investors, the results suggest that ESG assessment should distinguish between environmental, social, and governance information rather than relying only on aggregate ESG scores. For regulators, including OJK and institutions involved in sustainability reporting implementation, the findings highlight the importance of improving the comparability, credibility, and decision-usefulness of ESG disclosure as Indonesia moves toward more advanced sustainability reporting requirements.

Overall, the findings suggest that ESG disclosure components are reflected differently in firm performance. Market-based performance appears more sensitive to ESG disclosure components, although the direction of market response differs across components, while accounting-based profitability is more consistently associated with governance disclosure. These findings should be interpreted within the context of PROPER-rated Indonesian listed companies and the 2021–2023 post-pandemic recovery period. Future research should apply broader samples and stronger empirical designs to provide more robust evidence on the ESG disclosure–firm performance relationship.

Author contributions

First author was involved in the conception of the research hypothesis, data collecting, data analysis and paper preparation. Second Author was involved in processing the data and analysis of the results of the research. Third author supervised the entire process of manuscript production and provided recommendations to improve the quality of the paper.

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